Plena Voice Alarm System

The Plena Voice Alarm System is designed for public address and emergency evacuation in small to medium-sized applications such as factories, offices, hotels, shopping malls, supermarkets, sports facilities, schools and universities. All the essential EVAC functionality – such as system supervision, spare amplifier switching, loudspeaker line surveillance, digital message management and a fireman's panel interface – is combined with proven audio technology to guarantee excellent speech intelligibility and message delivery.

With emergency call (EMG) and BGM audio channels, up to 60 zones, 8 call stations and 2 remote control panels, the Plena Voice Alarm System offers extensive possibilities. The Plena Voice Alarm System is a one-channel or two call-channel (BGM & call) system. It is compatible with the Plena BGM source units and Plena Amplifiers. Bosch can deliver EVAC compliant loudspeakers and accessories for an integrated public address and voice alarm solution.

Features

- Fully IEC 60849 compliant
- Up to 60 zones
- Up to 8 call stations
- One-channel or two-channel operation
- Fully supervised system

Functions

The Plena Voice Alarm System is the integrated solution for BGM and EVAC. It complies with the IEC 60849 standard, including full system supervision, loudspeaker line impedance supervision, a supervised emergency microphone on the front panel and a supervised message manager for up to 255 pre-recorded messages and chimes. The messages can be merged to allow even more flexible use of pre-recorded announcements and evacuation messages. Each message can have any length within the total available capacity of 16 MB. Messages and configurations are uploaded from a PC via USB into the memory, after which the unit operates without PC connection.

The controller can be used as a stand-alone system with up to 6 zones, or expanded to up to 60 zones using additional 6-zone routers. Up to 8 call stations can be connected. Interconnections are made using standard RJ45 connectors and (shielded) CAT-5 cable.

Witth a maximum of 480 Watts per router, the audio output uses standard analog audio 100 V line switching for full compatibility with the Plena family of public address equipment and Bosch EVAC-compliant loudspeakers. The system is configured using DIP switches for basic functionality, and a PC for more advanced functions. Up to 16 priority levels can be specified for optimum system flexibility.

On each call station it is possible to select 6 zones, with the possibility to connect a call station keypad to increase the number of zones or zone groups that can be selected.

The controller and each connected router have 12 trigger inputs to start business and emergency messages. Each can be configured for a message consisting of a sequence of up to 8 wave files. In this way some wave files may be used in different combinations with other messages, optimizing flexibility and used storage space. Together with this sequence, a zone selection can be configured for each trigger input.

Technical Specifications	
Electrical	
Maximum allowed total cable length between the controller and the last router in the chain	1000 m
Maximum allowed total cable length between the controller and the last call station in the chain	1000 m
Maximum allowed total cable length between the controller and the RC panel	1000 m
System configuration through PC connection	USB 2.0
Allowable power per router	1000 Watts
Interconnections	CAT-5
No of zones in the system	Up to 60
Number of call station in the system	Up to 8
Number of call station key pads	8 per call station
Number of messages	255

Ordering Information

Model & Description

Plena Voice Alarm System

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LBB 1990/00 Plena Voice Alarm Controller

The Plena Voice Alarm Controller is the heart of the voice alarm system. It is the basis of the Plena Voice Alarm System, and has all the essential functionality for compliance with the IEC 60849 standard, including full system supervision, loudspeaker line impedance supervision, a supervised emergency microphone on the front panel and a supervised message manager.
The messages can be merged to allow even more flexible use of pre-recorded announcements and evacuation messages. The controller can be used as a stand-alone system with up to 6 zones, or expanded to up to 60 zones using additional 6-zone routers. Up to 8 call stations can be connected. Interconnections are made using standard RJ45 connectors and shielded CAT-5 cable.

A built-in 240 W amplifier provides the power for the emergency call channel and BGM. Additional Plena Amplifiers can be added to provide two-channel operation, or for additional power if the total power requirement exceeds 240 W (maximum 480 W per 6 zones). All amplifiers are supervised. The audio output uses standard analog audio 100 V line switching for full compatibility with the Plena family of public address equipment and Bosch EVAC-compliant loudspeakers. The system is configured using DIP switches for basic functionality and a PC for more advanced functions.

Features

- Heart of the Plena Voice Alarm System
- Compliant with standards for emergency sound systems (IEC60849)
- 6-zone system controller
- Built-in 240 W booster amplifier
- 12 Business and emergency control inputs and outputs

Functions

The controller has two BGM source inputs and a mic/line input with configurable priority, speech filter, phantom power and selectable VOX activation. A total of 16 priority levels can be specified for microphone, call stations and trigger inputs for optimum system flexibility.

The powerful 240 W output section has six transformer-isolated 100 V constant voltage outputs for driving 100 V loudspeakers in six separate zones. The 100 V-technique reduces line losses on longer distances and allows for easy parallel connection of multiple loudspeakers. All zones may be individually selected from the front panel, and the BGM output level in each zone can be individually set in 6 steps. The BGM output is connected to the 70 V line, so it is possible to connect a total load of 480 Watts in a two-channel system combined with a 480 Watt booster.

The output of the booster is also available as a separate output on 100 V and 70 V. A separate 100 V Call Only output is provided for addressing an area where BGM is not required but where priority announcements are. Six configurable Volume Override output contacts are available for overriding local volume controls during priority calls. A LED VU-meter monitors the output.

Up to 255 messages can be stored in the internal 16 MB flash ROM, without a need for battery backup. Each message can have any length within the total available capacity. Messages and configurations are uploaded from a PC via USB into the memory, after which the unit operates without PC connection. The standard WAV-format is used for the messages and sample rates of 8 kHz up to 24 kHz with 16-bit word length (linear PCM) are supported. This gives up to 17 minutes of recording time with CD-quality signal-to-noise ratio.

The unit has 12 contact trigger inputs for business and emergency (EMG) calls. Each can be configured for a message consisting of a sequence of up to 8 wave files. In this way some wave files may be used in different combinations with other messages, optimizing flexibility and used storage space. Multiple messages can be merged to form one integrated message. Together with this sequence, for each trigger input, a zone selection can be configured.

Parts Included

Quantity	Component
1	LBB 1990/00 Plena Voice Alarm Controller
2	19"Mounting brackets
1	Mains cable
1	Plena CD

Certifications and Approvals

EMC emission	acc. to EN 55103-1
EVAC compliance	acc. to IEC 60849
EMC immunity	acc. to EN 55103-2
Safety	acc. to EN 60065

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Installation/Configuration Notes

Rear view

Technical Specifications	
Electrical	
Mains Voltage	230 / 115 VAC, ±10%, 50 / 60 Hz
Main Power Consumption	60 VA
Max/Rated Output Power	360 W / 240 W
Battery Current	24VDC, +20% / -10%
Max Mains Inrush Current	8A @ 230 VAC / 16A @ 115 VAC
Power Consumption	
Mains Current	
System Idle	0.26 A = 60 VA
System Idle with Pilot Tone	0.6 A = 136 VA
Maximum Load*)	3.6 A = 830 VA
24 V Current	
System Idle	0.9 A
Maximum Load*	14 A
Performance	
Frequency Response	60 Hz – 18 kHz (+1/-3 dB, @ -10 dB ref. rated output)
Distortion	<1% @ rated output, 1 kHz
Bass Control	-8/+8 dB @ 100 Hz
Treble Control	-8/+8 dB @ 10 kHz
Inputs	
Mic / Line	
Input Type	XLR, 6.3 mm jack
Sensitivity	1 mV / 1V
S/N	63 dB (flat at max volume)
S/N	75 dB (flat at min volume/muted)
Headroom	25 dB
Speech Filter	-3 dB@ 315 Hz, high-pass, 6 dB/oct
Phantom Power Supply	12 V
VOX Trigger Level	−20 dB (100 µV mic / 100 mV line) or via input contact
Limiter	Automatic

Electrical	
BGM and PC Call Station	
Input Type	Cinch stereo (converted to mono)
Input Level	200 mV – 2 V
Impedance	22 kOhm
S/N	70 dB (flat at max volume)
S/N	75 dB (flat at min volume/muted)
Headroom	25 dB
Trigger Inputs	6 EMG, 6 business
Type	MC1,5/14-ST-3,5
Activation	Programmable
Supervision	On EMG inputs, programmable
Supervision Method	Series / parallel resistor
100 V Input	MSTB 2,5 /16-ST
Power Handling Capacity	480 Watts

*) Maximum load means; maximum power out, maximum load 24V out, maximum number of call stations

Outputs	
Tape Output	Cinch, 2x mono
Nominal Level	350 mV
Impedance	<1 kOhm
Loudspeaker Outputs	MSTB 2,5 /16-ST floating
100 V Outputs	480 W rated per zone
Volume Override Type	3 wire, 4 wire (24V), 4 wire failsafe
BGM Zone Output	70/50/35/25/18/13 V for 0/-3/-6/-9/
Attenuation	-12/-15 dB (120/60/30/15/8/4 W)
Output Contacts	
All Contacts	
Connector Type	MC 1,5/14-ST-3,5
Rating	250 V 7A voltage free
Emergency Active Relay	NO / COM / NC
Call Active Relay	NO / COM / NC
Fault Relay	NO / COM / NC normally energized (failsafe)
General Purpose Relays (2x)	NO / COM

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Environmental	
Operating Temperature	+5°C to +55°C
Storage Temperature	-25°C to +55°C
Relative Humidity	<95%
Acoustic Noise Level of Fan	<48 dB SPL @ 1m, at max speed temperature controlled 0 to max speed
Dimensions	144 x 430 x 360 mm (19" wide, 3U high)
Weight	approx. 15 kg
Rack Building	Rack mounting kit included

Messages	
Data Format	WAV-file, 16-bit PCM, mono
Supported Sample Rates (fs)	24 kHz, 22.05 kHz, 16 kHz, 12 kHz, 11.025 kHz, 8 kHz
Frequency Response	
@ fs = 24kHz	100 Hz – 11 kHz (+1/-3 dB)
@ fs = 22.05kHz	100 Hz – 10 kHz (+1/-3 dB)
@ fs = 16kHz	100 Hz – 7.3 kHz (+1/-3 dB)
@ fs = 12kHz	100 Hz – 5.5 kHz (+1/-3 dB)
@ fs = 11.025kHz	100 Hz – 5 kHz (+1/-3 dB)
@ fs = 8kHz	100 Hz – 3.6 kHz (+1/-3 dB)
Distortion	<0.1% @ 1 kHz
S/N (flat at max volume)	>80 dB
Memory Capacity	16 MB Flash ROM
Recording / Playback Time	1000 seconds @ fs = 8 kHz 333 seconds @ fs = 24 kHz
Number of Messages	Max. 255
Supervision Flash ROM	Continuous checksum control
Supervision DAC	1 Hz pilot tone
Data Retention Time	>10 years

Ordering Information

Model & Description

LBB 1990/00 Plena Voice Alarm Controller

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LBB 1992/00 Plena Voice Alarm Router

The Plena Voice Alarm router is an expansion unit that can add 6 zones as well as 12 input and 8 output contacts to the Voice Alarm System.

It can use the built-in booster of the Voice Alarm Controller, and provides outputs and inputs for one or two boosters in a multi amplifier one- or two-channel system.

It provides dual channel operation for calls and BGM simultaneously to a maximum of six different zones, using two Plena booster amplifiers. Plus, single channel operation is possible with only one Plena booster.

The routers can also share one Amplifier, including the internal booster of the Voice Alarm Controller. It is possible to use any number of amplifiers from one up to the number of routers used.

Features

- 6-zone router with single or dual channel operation
- 6 EMG input contacts
- 6 Business input contacts
- 6 Volume Override output contacts
- Supervision within the Plena Voice Alarm System (compliant to IEC60849)

Functions

The LBB 1992/00 has a set of relays for zone-switching the power amplifier output(s) to different loudspeaker groups. Each of the zones can be switched between the call channel (upon call-station selection or all-call microphone or emergency activation), the BGM channel (upon front panel selection), or off.

In order to get a message through (although the local volume controls may be set to a low volume level for e.g. background music), volume override relay contacts are provided for each zone separately for overriding local loudspeaker volume controls. Both the 3-wire and 4-wire override schemes are supported. Upon a call or an activated trigger input these contacts will be activated for the appropriate zones, together with an additional voltage free contact (Call Active) for control purposes.

A 24 VDC output is available to supply power to external relays, so no external power supply is required for that purpose.
A LED VU-meter allows for monitoring of the master output.

Parts Included

Quantity	Component
1	LBB 1992/00 Plena Voice Alarm Router
2	19"Mounting brackets
1	Mains cable
1	Plena CD

Certifications and Approvals

EMC emission	Acc. to EN 55103-1
EMC immunity	Acc. to EN 55103-2

Rear view

BOSCH

Technical Specifications	
Electrical	
Mains Voltage	230 VAC / 115 VAC, ±15%, 50 / 60 Hz
Max Mains Power Consumption	50 VA
Battery Voltage	20 – 26.5 V
Max Battery Current	1.8 A
Max Mains Inrush Current	1.5 A @ 230 VAC / 3A @ 115 VAC
Power Consumption	
Mains Current	
System Idle	0.2 A
Maximum Load	0.3 A
24 V Current	
System Idle	0.51 A
Maximum Load 24 V Output	1.5 A
Trigger Inputs	6 EMG, 6 business
Type	MC1, 5/12-ST-3, 5
Activation	Programmable
Supervision	On EMG inputs, programmable
Supervision Method	Series / parallel resistor
100 V Inputs	MSTB 2,5 /16-ST
Booster 1	100 V / 70 V / 0 V
Booster 2	100 V / 0 V
Power Handling Capacity	1000 Watts
Outputs	
100 V / 70 V Outputs	MSTB 2,5 /16-ST, floating
100 V Outputs	1000 W rated per zone
Volume Override Type	3 wire, 4 wire (24 V), 4 wire failsafe
Output Contacts	
All Contacts	
Connector Type	MC1,5/12-ST-3,5
Rating	250 V 7A voltage free
General Purpose Relays (2x)	NO / COM

Environmental	
Operating Temperature	+5°C to +55°C
Storage Temperature	-25°C to +55°C
Relative Humidity	<95%
Dimensions	88 x 430 x 260 mm (19" wide, 2U high)
Weight	approx. 3 kg
Rack Building	Rack mounting kit included

Ordering Information
Model & Description
LBB 1992/00 Plena Voice Alarm Router

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LBB 1956/00 Plena Voice Alarm Call station

The Plena 6-zone call station is a stylish, high-quality call station with a stable metal base design, a flexible microphone stem and a unidirectional condenser microphone. It is intended for making calls to selected zones (1 to 6 and all-call) in a PA system built around the LBB 1990/00 Voice Alarm System. In addition to table-top use, the unit's special design allows it to be neatly flush-mounted in desk tops. The Plena Voice Alarm Keypad (LBB 1957/00) is an extension adding 7 additional keys.

Features

- Stylish 6-zone call station, intended for LBB 1990/00 Voice Alarm System Controller
- Six zone selection keys, all-call key and momentary PTT-key for calls
- Selectable gain, speech filter and limiter for improved intelligibility
- LED indications for zone selection, fault and emergency state
- Call station extension provides 7 additional zone and zone group keys

Functions

On each call station it is possible to select 6 zones with the possibility to connect up to 8 call station keypads (LBB 1957/00) to increase the number of zones or zone groups that can be selected. Each keypad adds 7 zone or zone-group keys.

This call station features selectable gain, a selectable speech filter, a limiter for improved intelligibility. Because the call station provides a balanced line level output, it can be positioned up to 1000 m away from the controller, using CAT-5 extension cables.

Using shielded cable, the call station may also be used in a EMC level 5 (heavy industry) environment.

Using dipswitches on the bottom of the call station, different microphone gain levels can be selected as well as the call station ID and the speech filter. Selected zones are indicated with LEDs on the call station. Three additional LEDs give visible feedback on the active state of the microphone and the system. Green flashing means standby (chine is sounding), green indicates microphone active, amber indicates that the system has detected a fault (IEC 80649) and red indicates that the system is in the emergency state.

Parts Included

Quantity	Components
1	LBB 1956/00 Plena Voice Alarm Call Station or LBB 1957/00 Plena Voice Alarm Keypad
1	Cable terminated with a lockable CAT-5 connector

Certifications and Approvals

EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

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Technical Specifications

Electrical

Power Supply

Voltage Range	18 – 24 V 24 V by LBB 1990/00 or external power supply
Current Consumption	<30 mA Call Station <15 mA Key Pad

Performance

Nominal Sensitivity	85 dB SPL (gain preset 0 dB)
Nominal Output Level	700 mV
Maximum Input Sound Level	110 dB SPL
Gain Preset	+6 / 0 / -15 dB
Limiter Threshold	2 V
Compression Ratio Limiter	20 : 1
Distortion	<0.6% (maximum input)
Equivalent Input Noise Level	25 dB SPLA
Frequency Response	100 Hz – 16 kHz
Speech Filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Output Impedance	200 ohms
Selections	

Environmental

Operating Temperature	-10°C to +55°C
Storage Temperature	-40°C to +70°C
Relative Humidity	<95%
Base	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 inch)
Stem Length with Microphone	390 mm (15.35 inch)
Cable Length	5 m (196.85 inch)
Weight	approx. 1 kg

Ordering Information

Model & Description

LBB 1956/00 Plena Voice Alarm Call station

BOSCH

LBB 1995/00 - LBB 1999/00 Plena Voice Alarm System Remote Control

The Plena Voice Alarm Remote Control panels offer operational control at up to two remote locations. The main RC unit offers the front panel of the voice alarm controller, while the RC extensions offer the control of the routers. Both remote controls (LBB 1996 & LBB 1997) are available as a kit to manufacture tailor made solutions. Also available is a fireman's panel that features large illuminated buttons and an all call functionality.

Features

- Remote Control of the Voice Alarm System
- Emergency (EMG) microphone
- EMG and background (BGM) zone selections
- EMG state and fault indicators
- Control outputs for EMG and Fault state Front panel zone selection for BGM and call station zone selection for calls

Functions

The remote control is an exact match to the voice alarm controller with all controls and indicators at the same location. The remote control has BGM zone selection but not source selection, volume and tone controls. The remote control extension is a match to the router.

The volume units (VU) meter shows the presence and level of the calls that are running in the system. The fault indicators show detailed information of a fault in the system. Connection to the Bosch Voice Alarm System is done via standard shielded CAT 5 cable and RJ45 connectors. Included in the delivery are rack mount brackets that can also be used to mount the units to a rear wall with spacing for cables and even to a flat surface above or below the units.

The kits LBB 1998 & LBB 1999 are a functional match to the remote control and the RC extension, with connectors on the front panel instead of controls and indicators. With these kits it is possible to reliably build a custom control unit with confidence and ease. The electrical connections are printed on front and rear panels. A 24 VDC output is available to supply power to external LEDs and relays, so no external power supply is required for that purpose. An LED VU-meter allows for monitoring of the master output.

The fire panel, remote control and remote control kit function on an external 24V power supply. The RC extension and extension kit are powered by the interconnecting CAT-5 (shielded) cable.

Parts Included

Quantity	Component
1	LBB 1995/00 – LBB 1999/00
1	EMG microphone and cable (except extension)
1	1 m CAT-5 cable
2	19" mounting brackets
1	EMG mic mounting clip
1	Release notes
1	Plena CD with configuration software, installation and user instructions, audio tools, free music and more

Certifications and Approvals

EMC emission	Acc. to EN 55103-1
EMC immunity	Acc. to EN 55103-2

Technical Specifications	
Electrical	
24 V input	24 VDC, +20% / -10%
battery current	Typical – max (indicator test)
LBB 1995/00	100 mA – 250 mA
LBB 1996/00	100 mA – 250 mA
LBB 1997/00	50 mA – 200 mA
LBB 1998/00	100 mA – 250 mA
LBB 1999/00	50 mA – 200 mA
Performance*	
Relays	
Priority relay contacts	30 V, 1 A
Emergency relay contacts	30 V, 1 A
DC supply output voltage	24 V, 200 mA max
LEDs / LAMPs	(KITS)
LEDs on internal power	5 mA max
External power	50V – 200 mA max
Type	Open collector pull down

Environmental	
Operating temperature range	-10°C to +55°C
Storage temperature range	-40°C to +70°C
Relative humidity	<95%
General	
Dimensions	
LBB 1995/00	134 x 430 x 90 mm (19" wide, 3U high)
LBB 1996/00	134 x 430 x 90 mm (19" wide, 3U high)
LBB 1997/00	88 x 430 x 90 mm (19" wide, 2U high)
LBB 1998/00	134 x 430 x 90 mm (19" wide, 3U high)
LBB 1999/00	88 x 430 x 90 mm (19" wide, 2U high)
Weight approx.	3 kg

*) Technical performance data acc. to IEC60268-3

Ordering Information
Model & Description
LBB 1995/00 Plena Voice Alarm System Fireman's panel
All call EVAC Remote Control with microphone
LBB 1996/00 Plena Voice Alarm Remote Control
6 zone Voice Alarm Controller remote control with microphone
LBB 1997/00 Plena Voice Alarm System Remote Control Extension
6 Zone Voice Alarm Router remote control
LBB 1998/00 Plena Voice Alarm System Remote Kit
Kit for 6 Zone Voice Alarm controller remote control
LBB 1999/00 Plena Voice Alarm System Remote Control Extension
Kit for 6 Zone Voice Alarm router remote control

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